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# NEWLY-FORMED PHYLLOSILICATES FROM HYDROTHERMALLY ALTERED GRANITOID ROCKS IN THE PEZINOK–KOLÁRSKY VRCH SB-AU DEPOSIT, WESTERN CARPATHIANS, SLOVAKIA

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Granitoid rocks are often affected by different degrees of hydrotermal alteration in the surroundings of Sb-Au deposits. Many authors (e.g. BRIL & BEAUFORT, 1989 and others) have recognized three alteration zones: chlorite zone, muscovite zone and illite-carbonate zone. Our recent study has found analogous conclusions from altered granitoid rocks in the Pezinok–Kolársky vrch Sb-Au deposit. Newly-formed phyllosilicates are represented by chlorites and K-micas. Chlorites were formed from primary biotites of two-mica granitoid rocks. We have recognized trioctahedral chlorites ($\Sigma R_{5.62-5.90}$, $\square_{0.09-0.49}$, isomorphous series clinochlore–chamosite) according to the classification of WIEWIÓRA & WEISS (1990) and WEISS (1991). They can be divided into two subgroups: $Fe^{2+}$-clinochlore (schematic formula $Mg_{34.39-36.32}Fe_{28.31-37.07}X_{24.02-35.39}$) and $Mg^{2+}$-chamosite (schematic formula $Mg_{34.34-37.90}$ $Fe_{34.76-39.32}X_{23.18-28.30}$). Chemical composition of these chlorites (originated from strongly and less altered rocks) is: $(Mg_{1.95-2.30}Fe_{1.56-2.18}Mn_{0.01-0.02}Ca_{0.01-0.03}Al_{1.23-1.69}Ti_{0.01-0.03}\square_{0.12-0.49})$ $(Si_{2.81-3.16}Al_{0.84-1.19})O_{10}(OH)_8$ for $Fe^2$+-clinochlore, and $(Mg_{1.93-2.24}Fe_{2.10-2.32}Mn_{0.01-0.02}$ $Ca_{0.00-0.02}Al_{1.16-1.53}Ti_{0.01-0.19}\square_{0.09-0.38})(Si_{2.78-3.22}Al_{0.78-1.22})O_{10}(OH)_8$ for $Mg^{2+}$-chamosite. $Fe\text{-}Mg_{-1}$ substitution is the dominant type of substitution, which is combined with low "dioctahedral" substitution $Al_2Mg_{-3}$. Chlorite-like material from weakly altered rocks is not in compliance with theoretically possible composition of chlorites according to WEISS (1991). It is caused by incomplete alteration of biotites into chlorites ($\Sigma R_{6.12-6.25}$). K-micas were formed from plagioclases and can be divided into illites and "alumo-celadonites". Chemical composition of illites (originated from strongly altered rocks) is $K_{0.77-0.965}$ $(Al_{1.61-1.89}Ti_{0.005-0.02}Fe_{0.02-0.105}Mg_{0.11-0.41}\square_{0.865-1.055})$ $(Al_{0.77-0.95}Si_{3.05-3.23})$ $O_{10}$ $(OH)_2$. Main type of substitution is $I_{-1}(Si_{+1}Al_{-1})$ and it is combined with low celadonitic substitution. In the MR3-MR2-2R3 diagram (VELDE, 1977) these illites are grouped near and slightly below the muscovite end-member, along the muscovite–pyrophyllite tie-line. In "alumoceladonites" (originated from middle altered rocks), the dominant relation among chemical constituents is given by the celadonitic substitution $(Si_{+1}Al_{-1})^{IV}(Al_{-1}R^{2+}{}_{+1})^{VI}$ and it is demonstrated by a strong positive correlation of $Si^{IV}/Al^{VI}$. This substitution is combined with the low $K_{-1}(Si_{+1}Al_{-1})_{IV}$ substitution of Al by Si together with a decrease of interlayer occupancy. Chemical composition is $(K_{0.685-0.87}Na_{0.02-0.24}Ca_{0.015-0.035})$ $(Al_{1.555-1.685}Ti_{0.015-0.02}Fe_{0.10-0.165}Mg_{0.215-0.26}\square_{0.957-1.005})(Al_{0.567-0.68}Si_{3.32-3.425})O_{10}(OH)_2$. Analysed "alumoceladonites" are perfectly parallel to the tie-line muscovite–celadonite in the MR3-MR2-2R3 diagram.

References

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